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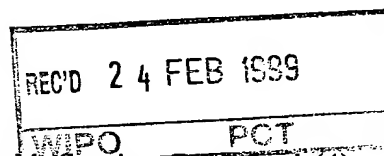
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- 3 JAN 1998

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

1. Your reference

P57259F

2. Patent application number

(The Patent Office will fill in this part)

9800015.1

3. Full name, address and postcode of the or of each applicant (underline all surnames)

VAN ASSELT, Jan Abram

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Surrey RH2 8RJ

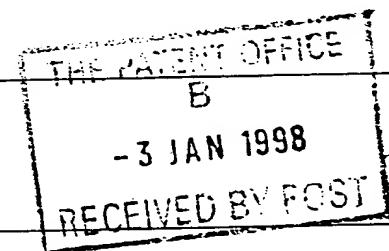
Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

06396931001

4. Title of the invention

Ball Game Apparatus



5. Name of your agent (if you have one)

Fry Heath & Spence

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

The Old College
53 High Street
Horley
Surrey RH6 7BN

Patents ADP number (if you know it)

05880273001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

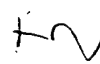
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

No

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

Patents Form 1/77

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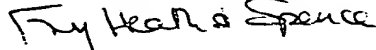
Continuation sheets of this form	0
Description	7
Claim(s)	0
Abstract	0
Drawing(s)	2 

10. If you are also filing any of the following, state how many against each item.

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Translations of priority documents	0
Statement of inventorship and right to grant of a patent (Patents Form 7/77)	0
Request for preliminary examination and search (Patents Form 9/77)	0
Request for substantive examination (Patents Form 10/77)	0
Any other documents (please specify)	0

11.

I/We request the grant of a patent on the basis of this application.

Signature  Date 02.12.1998

12. Name and daytime telephone number of person to contact in the United Kingdom

A.V. Fry - 01293 776880

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BALL GAME APPARATUS

This invention relates to apparatus for use in playing and practising ball games. More especially, but not exclusively, the invention relates to apparatus for improving the skills of participants in ball games.

The term "ball games" as used herein embraces games such as tennis, base ball, golf, badminton and the like, in which a projectile such as a ball, shuttlecock or the like is propelled by a racquet, stick, club or the like.

In the field of competitive sport it is a well known adage that practice makes perfect. Thus, for example, tennis players spend many hours improving *inter alia* forward and backhand strokes on tennis courts.

In the field of tennis, there are several inanimate tennis trainers available, these including *inter alia*, a ball attached by an elasticated strand, string or rope to some form of central support. Such trainers are unsatisfactory because the ball approaches the player at an unrealistic angle and speed. Furthermore, *missing* the ball results in the elasticated strand, string or rope becoming inconveniently entangled around the support.

Children also enjoy ball games, but unless they are coached, they have even less opportunity of improving their skills. Furthermore, few children have sufficient space and freedom from houses and cars to play ball games unrestrictedly.

Disabled persons, especially those confined to wheelchairs and who do not have the mobility of an able bodied person, cannot play conventional ball games and find obvious difficulties with currently available tennis

trainers and the like.

Similar problems arise with other ball games.

Therefore, there is a need to provide apparatus for simulating ball games which can be adapted for one or more players, which is suitable for adults, children and disabled persons, which is economical to produce and which can be used in relatively small areas without concern over surrounding buildings and cars.

The present invention sets out to provide such apparatus.

Accordingly, in one aspect the invention provides apparatus for use in playing and practising ball games which comprises upper and lower guideways, reciprocating means connected to and freely movably along said upper and lower guideways, and a ball connected to said reciprocating means.

The upper guideway may be inclined. Also, the maximum height of the upper guideway above the lower guideway may be greater than the length of the reciprocating means. In this arrangement, when the reciprocating means is positioned at, or towards, one end of the guideways, a player may strike the ball and propel the reciprocating means forwardly along the guideways. However, when the length of the reciprocating means becomes limiting in relation to the distance between the upper and lower guideways, the reciprocating means decelerates, stops and is deflected back along the guideways towards the player.

The force required to strike the ball on the reciprocating means may be regulated by altering the position of the lower guideway relative to the upper guideway. Thus for example, moving one end of the lower guideway nearer to a point directly below an end of the upper guideway increases the

speed and force of the ball approaching a player standing at a fixed point.

It is preferred that the ends of the lower guideway are adjustably engaged with the ground so that the force and speed of the ball on the reciprocating means may be varied according to the competence of the player.

In an alternative arrangement, the upper and lower guideways are substantially parallel. This arrangement is of especial interest to children and disabled persons where there is a common requirement for the ball to stay within defined limits. Wheelchair-bound persons may thus develop ball game skills using this invention.

Typically, the ends of the upper, and optionally the lower guideway, are attached to a stable support. In particular, the stable support is a wall or pole.

The upper and lower guideways may lie in a plane which is generally normal to the ground or in a plane which is inclined thereto.

The reciprocating means may comprise an upstanding line connected to the upper and lower guideways.

The invention also contemplates an embodiment, wherein the reciprocating means comprises more than one upstanding line, for example, wherein the reciprocating means comprises one upstanding line connected to the upper guideway and another associated upstanding line connected to the lower guideway.

The reciprocating means may be connected to the upper and lower guideways through a slide which may comprise a hinged clip, ring, rope slide or adjustable loop.

In one embodiment the upper and/or lower guideways and/or the reciprocating means are made of a low friction material such as plastics covered cord or wire. The upper and lower guideways and the reciprocating means may be made of the same material.

The invention also contemplates an embodiment where the upper and/or lower guideways are made of a substantially rigid material. By substantially rigid it is meant relatively inflexible. Therefore, one or both guideways may take the form of a plastics track which is capable of receiving a runner to which the reciprocating means is connected.

The ball may be connected at any point along the reciprocating means. This affords the possibility of the apparatus being used as apparatus for any ball game. For example, the ball may be attached towards the middle point of the reciprocating means to simulate apparatus for playing tennis or baseball, or alternatively, the ball may be attached near the lower end of the reciprocating means to simulate apparatus for playing golf.

Accordingly, the ball may be chosen from *inter alia* a tennis ball, a baseball, a rounders ball, a shuttlecock, a cricket ball, a hockey ball, or a golf ball.

In another aspect, the invention provides apparatus for use in playing and practising ball games, comprising a ball suspended by an upstanding line from an upper, generally horizontal or inclined elongate guideway and connected by the same or a second upstanding line to a lower, generally horizontal or inclined elongate guideway.

The lower elongate guideway may be at ground level. The height of the ball above ground level may be adjustable.

The upper and lower guideways may lie in a plane which is generally

normal to the ground or in a plane which is inclined thereto. One or each guideway may take the form of a string, rope or the like stretched between two spaced supports. The line may be coated with or formed from a material having relatively low friction properties, for example a plastics material.

The upstanding line(s) may be connected to the upper and/or lower guideway by a slide in the form of, for example, a loop or ring.

The invention will now be described by way of example only with reference to the following diagrammatic drawings, in which:-

Figure 1 is a side view in perspective of apparatus in accordance with the invention;

Figures 2 and 3 illustrate different ways of supporting the apparatus of Figure 1; and

Figure 4 is a side view in perspective of alternative apparatus in accordance with the invention.

The apparatus shown in Figure 1 takes the form of a tennis training aid, especially for one player. The apparatus comprises upper and lower guideways 1, 2 respectively, of plastics coated cord which are attached at their ends to two supports 3, 4 spaced approximately 10 metres apart. Typically, the heights of the supports above ground level are respectively two metres and three metres. Thus the height of the upper guideway 1 above ground level is greater at its point of connection to support 4 than at its point of connection to support 3. The supports 3, 4 are held in position by inclined guy ropes 5 attached to ground engaging pegs 6. The lower guideway 2 is fixed at ground level and the upper guideway 1 is inclined upwardly from the support 3. Two positions of the lower guideway are

shown in Figure 1, these being shown in full line and broken line. A ball 7 is suspended by a line 8 to the upper guideway 1 and by a line 9 to the lower guideway 2. The line 8 is supported from the upper guideway 1 by a loop or ring 10 and the line 9 is connected to the lower guideway 2 by a loop or ring 11. The lines 8, 9 may be secured to the ball by stitching, stapling or any other means. In an alternative arrangement, a single line is used, this extending through or around the periphery of the ball.

When the training aid is in use, a player stands near the lower guideway 2 at its point of connection to support 3 and strikes the ball with a racquet or the like using either forehand or backhand strokes. The starting positions of the ball and lines 8, 9 (and the guideway 2) are shown in full line to the left hand side of Figure 1 and the limiting positions are shown in broken line to the right hand side of Figure 1. The force of the strike sends the lines 8, 9 and the ball 7 along the upper and lower guideways 1, 2 towards the limiting position shown in broken line. Once the distance between the ends of the lines 8, 9 (the lower guideway 2 now being in its raised position shown in broken line) becomes limiting in relation to the distance between the upper and lower guideways, the lines 8, 9 slow down, stop and are deflected back along the upper and lower guideways to return to the player who can then strike the ball again.

Figures 2 and 3 illustrate different methods of supporting the apparatus e.g. attachment at one end to a wall 12 as in Figure 2 and attached between two walls 14 as shown in Figure 3.

The apparatus shown in Figure 4 illustrates an alternative embodiment in accordance with the invention and is especially designed for two players. In this embodiment, the upper and lower guideways 1, 2 are generally parallel so that a ball can be played at either end of the apparatus to send the lines 8, 9 along the upper and lower guideways 1, 2 to the other player.

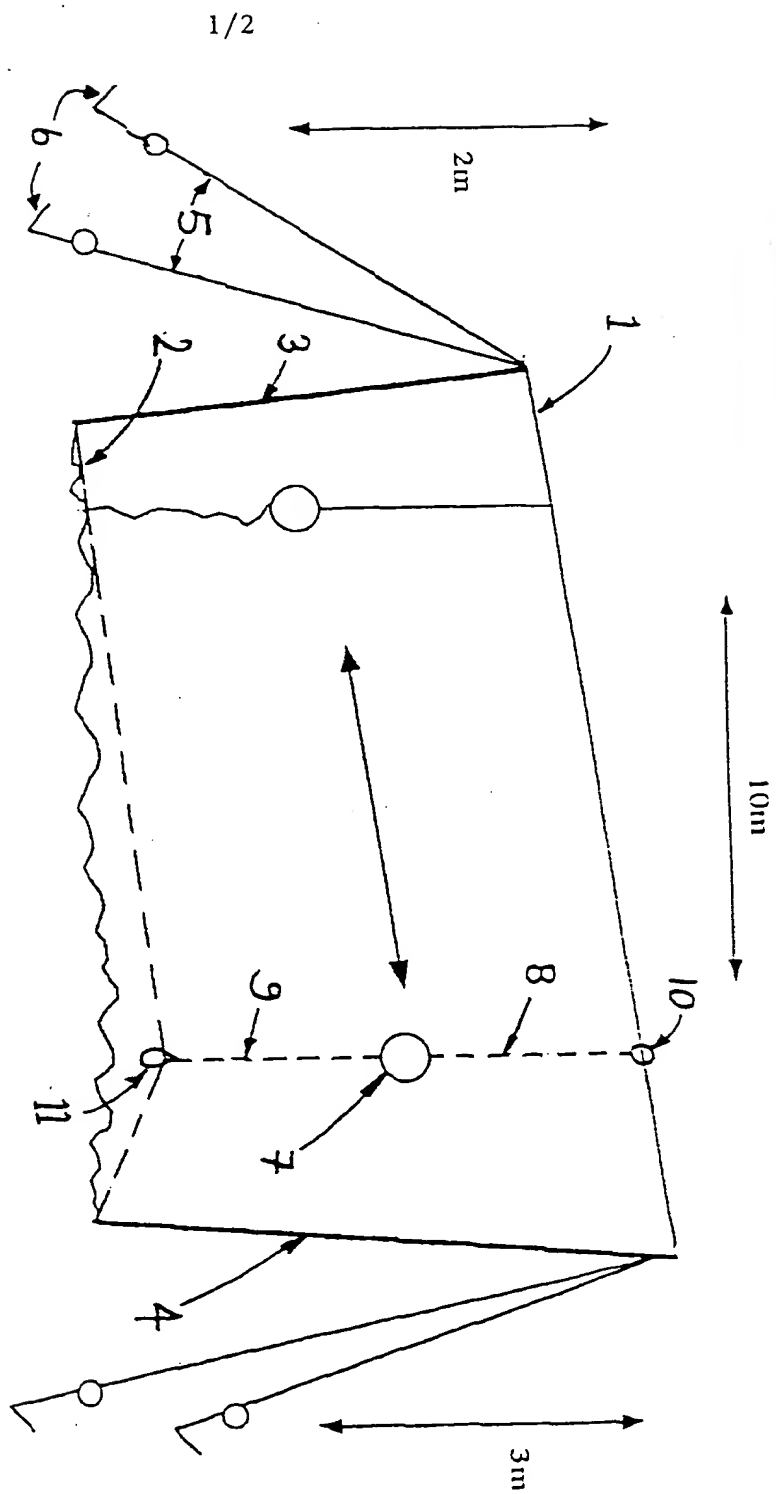
It will be appreciated that the foregoing is merely exemplary of embodiments of the invention and that modifications can readily be made without departing from the scope of the invention.

Thus, the length of the upper and lower guideways may be greater or less than 10 metres. Also, the single supports 3, 4 may be replaced by sideways spaced supports to provide greater access to the ball by a player or players. The upper and/or lower guideway 1 or 2 may be produced from a relatively rigid material and may comprise a length of, for example, plastics formed with a track which receives a runner to which the line 8 or 9 is attached.

As mentioned previously, the "ball" 7 may comprise a tennis ball, base ball, golf ball or like projectile such as a shuttlecock. The height of the ball 7 above ground level is therefore readily adjustable to simulate playing conditions for all of such games.

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FIGURE 1



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FIGURE 2

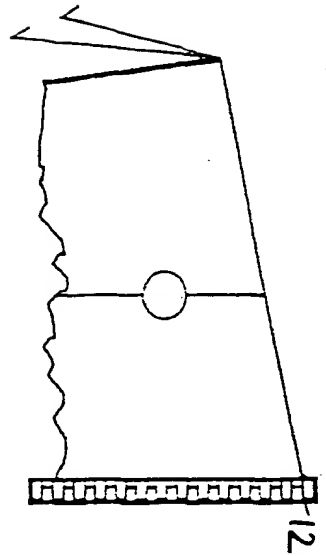


FIGURE 3

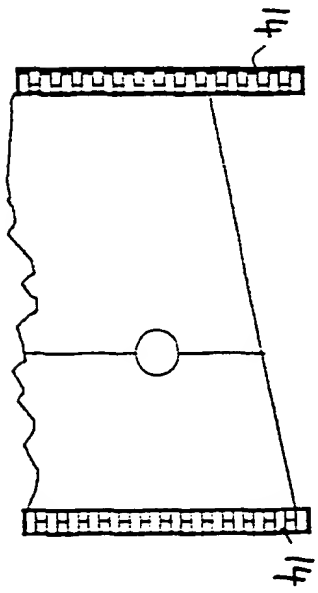
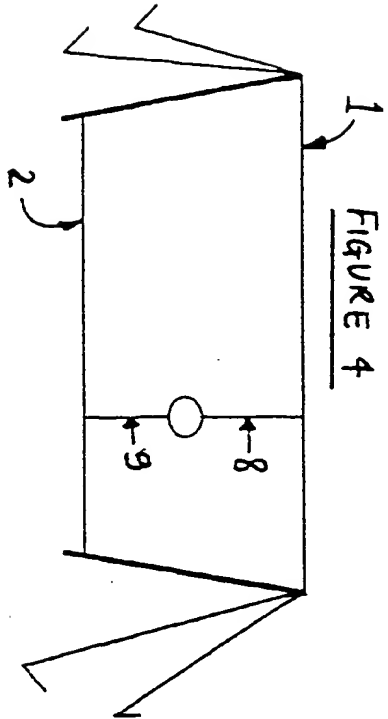


FIGURE 4



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